

# GRADE 5

## STUDENT PRACTICE TEST BOOKLET

Student Name: \_\_\_\_\_



# MEA

Maine Educational Assessment

## RELEASED 2017 SCIENCE ITEMS

Maine Department of Education

# SCIENCE PRACTICE TEST

This practice test has sixteen multiple-choice questions and two constructed-response questions.

Choose the best answer for each multiple-choice question. Fill in the bubble next to your answer choices for questions 1 through 16 on page 2 of your practice test answer booklet.

- ❶ A maple tree grows tall if its basic needs are met. If most of the roots of the tree are cut off, the tree may not survive.

Why will the tree **most likely** die?

- A. The tree's cells need more sunlight.
- B. The tree's cells receive too much air.
- C. The tree's cells require water and minerals.
- D. The tree's cells need bacteria for survival.

- ❷ Which trait is **least likely** to be passed on from parents to children?

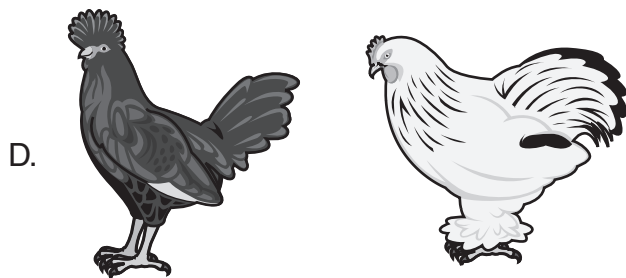
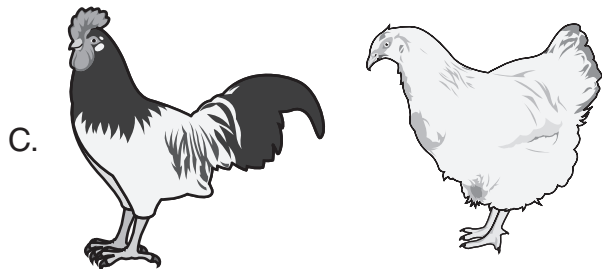
- A. color blindness
- B. eye color
- C. blood type
- D. childhood scar

PLEASE GO ON ➡

- 3 This drawing shows an adult chicken.



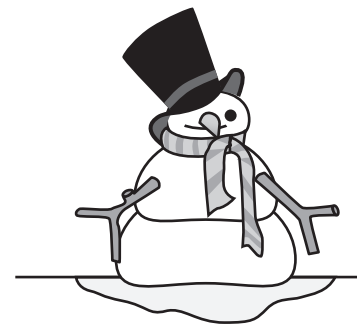
Which two birds are **most likely** the parents of this chicken?



- 4 The pictures below show a snowman at night and during the day.



Night



Day

Why does the snowman melt during the day but **not** at night?

- A. The snowman gets less snow at night.
- B. The snowman gets no heat from the Sun at night.
- C. The snowman does not lose cold to the air at night.
- D. The snowman does not lose water to the Sun at night.

PLEASE GO ON ➡

5 During a bright summer day, a student observes that a cloud gets smaller and smaller. What is the **most likely** reason the cloud gets smaller?

- A. The heat of the Sun turns part of the cloud into a gas.
- B. Cold air causes part of the cloud to sink into the ground.
- C. Water droplets wash away part of the cloud.
- D. Birds remove part of the cloud.

6 Our solar system has a star and planets. Another star and planets make up a different solar system. How are these two solar systems similar?

- A. Both have a star at the center.
- B. Both have a moon at the center.
- C. Both have moons that revolve around the star.
- D. Both have a star that revolves around a planet.

7 The table below shows the food sources of some Maine forest animals.

**Forest Animal Foods**

Animal	Foods
Ground squirrel	Berries, pine seeds, acorns
Rabbit	Tree leaves, twigs, bark
Hawk	Squirrels, rabbits, birds, snakes
Fox	Squirrels, rabbits, birds
Owl	Squirrels, rabbits, birds, snakes

Which group of organisms provides a source of food that supports all the animals in the table?

- A. hawks and owls
- B. foxes and snakes
- C. trees and seeds
- D. squirrels and rabbits

PLEASE GO ON ➡

- 8 An empty pan weighs 0.5 kg. A student fills the pan with water and weighs it. The pan of water now weighs 1.5 kg. The student places the pan of water on a hot stove and boils the water for ten minutes. After the pan of water cools, she weighs it again.

What is the weight of the **water** that remains in the pan?

- A. It is exactly 1 kg.
- B. It is less than 1 kg.
- C. It is exactly 1.5 kg.
- D. It is greater than 1.5 kg.

- 9 Steel is a type of metal that is very strong. It is produced by mixing different types of materials.

- Mild steel contains iron and a small amount of carbon.
- Cast iron steel contains iron and a larger amount of carbon.
- Stainless steel contains iron, carbon, chromium, and nickel.

Which conclusion is **best** supported by this information?

- A. Each type of steel is used for the same purpose.
- B. Each type of steel is made from a small number of ingredients.
- C. Each type of steel has completely different ingredients.
- D. Each type of steel has at least three different ingredients.

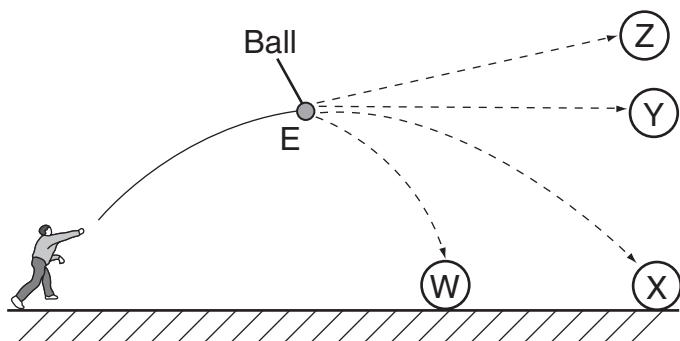
- 10 Tiny plant-like organisms that live in the ocean often multiply and move through the water in large numbers. Sometimes these plant-like organisms release a chemical that kills other organisms.

How do these tiny plant-like organisms **most likely** affect coastal environments?

- A. They decrease fish populations.
- B. They cause coastal temperatures to rise.
- C. They cause beach erosion.
- D. They increase the amount of seaweed.

PLEASE GO ON ➡

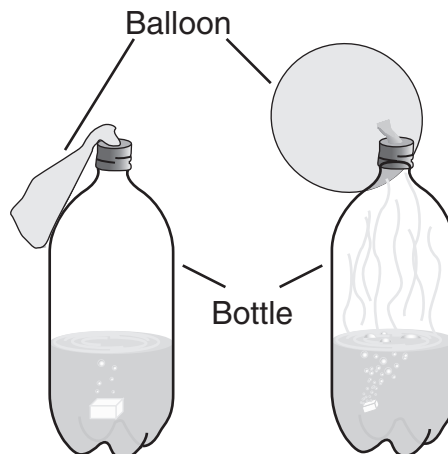
- 11 The diagram below shows a student throwing a ball and the possible paths it could take.



What is the **most likely** path of the ball after point E?

- A. path W
  - B. path X
  - C. path Y
  - D. path Z
- 12 Salmon are fish that live in cold water. Cold water has more oxygen in it than warm water. What will **most likely** happen to the number of salmon in a stream if the water becomes warmer?
- A. All the salmon will grow larger fins.
  - B. All the salmon will breathe oxygen from the air.
  - C. The number of salmon will decrease because of the lack of oxygen.
  - D. The number of salmon will increase because there will be more food.

- 13 The pictures below show a balloon on top of a bottle.



Picture 1

Picture 2

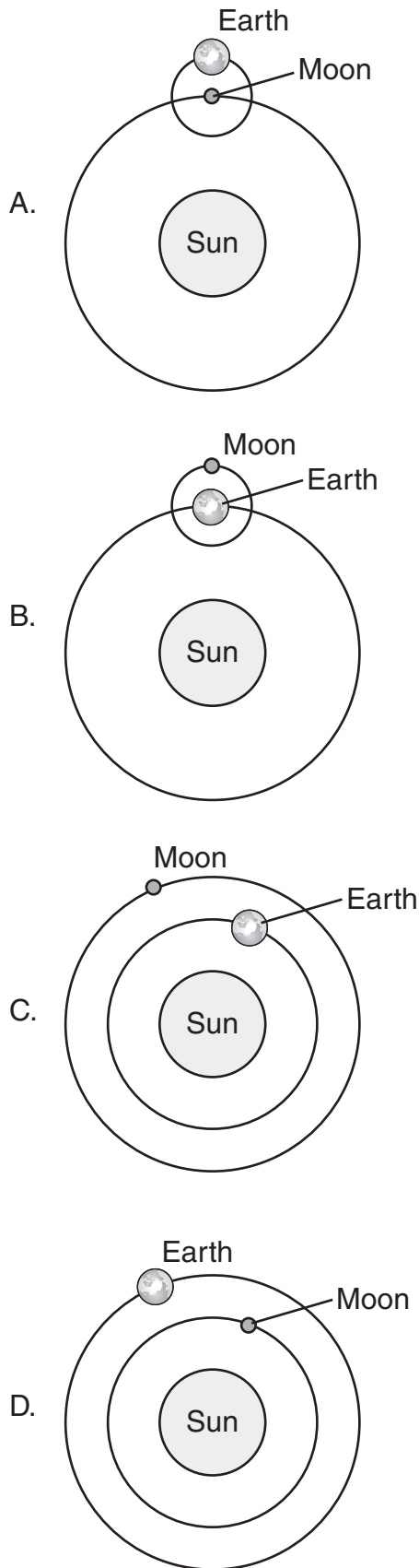
In picture 1 a student adds a white material to a clear liquid in a bottle. Then the student puts a balloon on top of the bottle opening. In picture 2 the student records that bubbles form and the balloon increases in size.

How does this experiment show that a new material forms?

- A. The amount of liquid stays the same.
- B. The balloon size decreases.
- C. A white material is produced.
- D. A gas is produced.

PLEASE GO ON ➡

- 14 Which figure shows the Sun and the correct orbits of Earth and the Moon?



- 15 Which of the following are living cells?

A. bacteria  
B. water  
C. sand  
D. glass

- 16 A student sees a euglena, a volvox, and algae in a sample of pond water. Euglena has only one cell. Volvox and algae are made of many cells. All three organisms have green spots inside their cells. The student learns that these spots are called chloroplasts. Organisms use chloroplasts to make food from sunlight.

Which conclusion about one-celled and many-celled organisms is **best** supported by the student's observation?

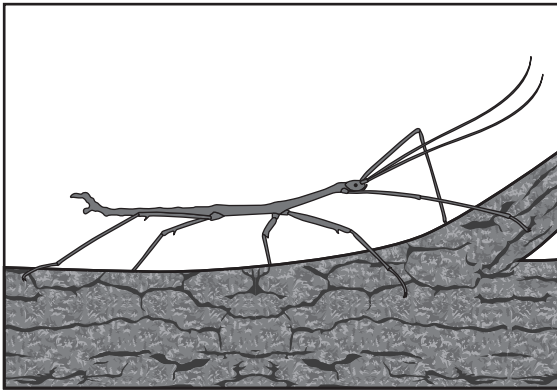
A. Neither can survive without water.  
B. Both are alike in how they get food.  
C. Both have similar ways to move.  
D. Neither can get food from other organisms.

PLEASE GO ON ➡

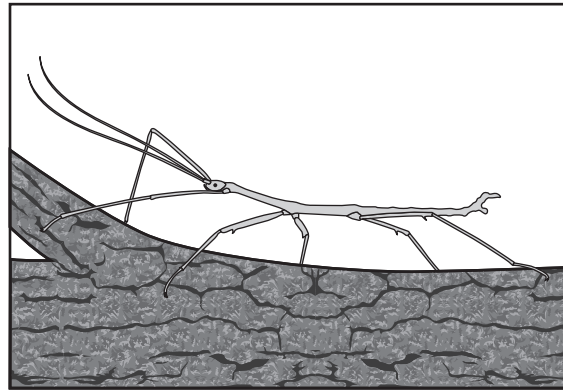
Write your answers to constructed-response questions 17 and 18 in the boxes provided on pages 2 and 3 of your practice test answer booklet. Be sure to answer and label all parts of the questions.

- 17 A walking stick is an insect that looks like a twig and feeds on leaves. In Maine it is usually pale green or dark brown, but it can also be brilliant green or blue in some parts of the world. When attacked by predators, it fakes its death.

**Dark Brown**



**Pale Green**

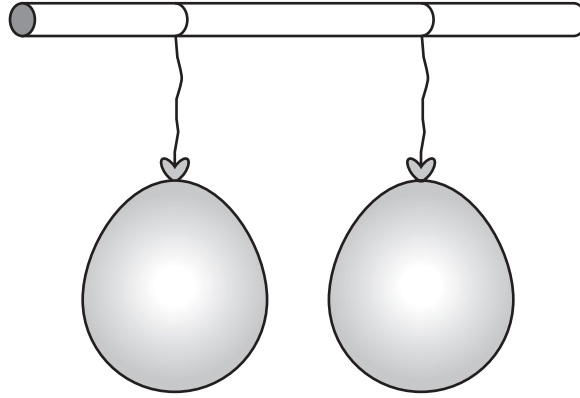


- Based on the pictures, identify and explain which walking stick would **most likely** be a target for predators.
- Describe whether a brilliant-colored walking stick would have an advantage or disadvantage for survival in the Maine forest. Explain your reasoning.

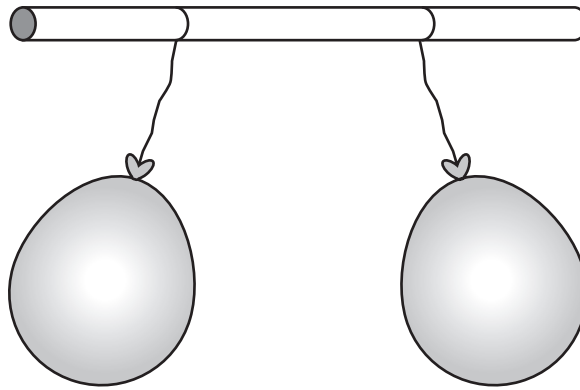
**Be sure to label parts a and b in your answer booklet.**

PLEASE GO ON ➡

- 18 A student is investigating forces with balloons. First the student hangs two balloons next to each other on separate strings, as shown below.



Then the student rubs one balloon on a wool sweater. The result is shown in the diagram below.



- Based on the diagrams, make a statement telling whether the changes in position of the balloons are due to gravity or some other force. Support your statement with evidence from the diagrams.
- Describe another example of a force that can move objects without touching them **and** explain how this supports your statement in part a.

**Be sure to label parts a and b in your answer booklet.**

